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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/580,223	05/26/2000	Andrew Kay	YAMAP0713US	8243

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Neil A DuChez  
Renner Otto Boisselle & Sklar LLP  
19th Floor  
1621 Euclid Avenue  
Cleveland, OH 44115

EXAMINER

SHARON, AYAL I

ART UNIT	PAPER NUMBER
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2123

DATE MAILED: 06/19/2003

7

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/580,223

Applicant(s)

KAY ET AL.

Examiner

Ayal I Sharon

Art Unit

2123

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 26 May 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 May 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Introduction***

1. Claims 1-13 of U.S. Application 09/580,223 filed on 05/26/2000 are presented for examination. The application claims foreign priority to U.K. Patent Application 9912232.7, dated 05/27/1999.

### ***Drawings***

2. This application has been filed with informal drawings which are acceptable for examination purposes only. More specifically, the lines, numbers and letters are not uniformly thick and well defined, as required by 37 CFR 1.84(i). Formal drawings will be required when the application is allowed.

### ***Double Patenting***

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164

USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

4. A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).
5. Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).
6. Claim 1 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,021,266. Although the conflicting claims are not identical, they are not patentably distinct from each other because both claim a compiler for a hardware description language that "... is arranged to retime the synchronized communication without changing the order of external communication of the integrated circuit ..." (Claim 1 of issued patent). The instant application describes it as "...the method uses a language construct which effects synchronized communication between the sender process and the receiver process.
7. Claim 2 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 2 of U.S. Patent No. 6,021,266. Although the conflicting claims are not identical, they are not patentably distinct from each other because the "...hardware optimizer is

arranged to perform scheduling and allocation" in the issued claim is functionally equivalent to "pre-emptive scheduler" in the instant application.

8. Claim 3 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 2 of U.S. Patent No. 6,021,266. Although the conflicting claims are not identical, they are not patentably distinct from each other because the issued claim refers to "... retime the synchronized communication without changing the order ...". This is functionally equivalent to "... the send algorithm is carried out without descheduling" in the instant application.
9. Claim 4 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 2 of U.S. Patent No. 6,021,266. Although the conflicting claims are not identical, they are not patentably distinct from each other because the issued claim uses the term "handshaking", which is the term commonly used in the art for "... a check that all of the receiver processes are ready to receive data before data is transferred ...." (Claim 4 of the instant application).
10. Claim 5 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 2 of U.S. Patent No. 6,021,266. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

- a. the "...hardware optimizer is arranged to perform scheduling and allocation" in the issued claim is functionally equivalent to "pre-emptive scheduler" in the instant application.
- b. the issued claim uses the term "handshaking", which is the term commonly used in the art for "... a check that all of the receiver processes are ready to receive data before data is transferred ...." (Claim 4 of the instant application).

11. Claim 6 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 2 of U.S. Patent No. 6,021,266. Although the conflicting claims are not identical, they are not patentably distinct from each other because the issued claim refers to "... retime the synchronized communication without changing the order ...". This is functionally equivalent to "... the receive algorithm is carried out without descheduling" in the instant application.

12. Claim 7 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,021,266. Although the conflicting claims are not identical, they are not patentably distinct from each other because the issued claim teaches "... wherein the compiler includes a hardware optimizer for optimizing hardware implementation ...". This is equivalent to the claim in the instant application for "... at one of said processes is embedded in hardware."

13. Claim 8 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,021,266. Although the conflicting claims are not identical, they are not patentably distinct from each other because the issued claim teaches "... defining functions of the integrated circuit in a programming language ...wherein the compiler includes a hardware optimizer for optimizing hardware implementation ...". This is equivalent to the claim in the instant application for "... all of said processes are described in said hardware description language."
14. Claim 9 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,021,266. Although the conflicting claims are not identical, they are not patentably distinct from each other because the issued claim teaches "... defining functions of the integrated circuit in a programming language ...wherein the compiler includes a hardware optimizer for optimizing hardware implementation ...". This is equivalent to the claim in the instant application for "... first simulating at least part of the circuit ... then creating the circuit using said hardware compiler."
15. Claim 10 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 10 of U.S. Patent No. 6,021,266. Although the conflicting claims are not identical, they are not patentably distinct from each other because the issued claim teaches "An integrated circuit which is designed by the method according to claim 1." This is

equivalent to the claim in the instant application for "A synchronous electrical circuit as claimed in claim 9, which is a digital electronic circuit."

***Claim Rejections - 35 USC § 102***

16. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

17. The prior art used for these rejections is as follows:

18. Kay, Andrew, U.K. Patent Application 2,317,245. Date of Publication: March 18, 1998. (Henceforth referred to as "**Kay**").

19. The claim rejections are hereby summarized for Applicant's convenience. The detailed rejections follow.

**20. Claims 1-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Kay.**

21. In regards to Claim 1, Kay teaches the following limitations:

1. A method of transferring data from a sender process to a plurality of receiver processes, (Kay, especially: Fig.2C and associated text; p.6, 4<sup>th</sup> para.; Claim 1; p.15, last para.)

wherein at least one of said processes is described in a hardware description language, (Kay, especially: Fig.1, Items 1,7,11; p.9, last para.; p.15, last para; p.23, para.3)

said hardware description language incorporating simulation means for simulation of the behaviour of hardware and also incorporating a hardware compiler for deriving hardware which behaves according to said simulation, (Kay, especially: Fig.1, Items 9,10; pp.22-23)



characterised in that the method uses a language construct which effects synchronised communication between the sender process and the receiver processes.

(Kay, especially: Fig.1, Items 9,10; pp.22-23; Figs.2A-2C; pp.24-25)

22. In regards to Claim 2, Kay teaches the following limitations:

2. A method as claimed in claim 1 which involves carrying out a send algorithm under the control of a pre-emptive scheduler.

(Kay, especially: Fig.1, Items 9,10; pp.22-23; Figs.2A-2C; pp.24-25)

23. In regards to Claim 3, Kay teaches the following limitations:

3. A method as claimed in claim 2, characterised in that the scheduler ensures that the send algorithm is carried out without descheduling.

(Kay, especially: Fig.1, Items 9,10; pp.22-23; Figs.2A-2C; pp.24-25)

24. In regards to Claim 4, Kay teaches the following limitations:

4. A method as claimed in claim 2, characterised in that a check is made that all of the receiver processes are ready to receive data before data is transferred from the sender process to the receiver processes.

(Kay, especially: Fig.1, Items 9,10; pp.22-23; Figs.2A-2C; pp.24-25)

25. In regards to Claim 5, Kay teaches the following limitations:

5. A method as claimed in claim 1 which involves carrying out a receive algorithm under the control of a pre-emptive scheduler.

(Kay, especially: Fig.1, Items 9,10; pp.22-23; Figs.2A-2C; pp.24-25)

26. In regards to Claim 6, Kay teaches the following limitations:

6. A method as claimed in claim 5, characterised in that the scheduler ensures that the receive algorithm is carried out without descheduling.

(Kay, especially: Fig.1, Items 9,10; pp.22-23; Figs.2A-2C; pp.24-25)

27. In regards to Claim 7, Kay teaches the following limitations:

7. A method as claimed in claim 1, characterised in that at least one of said processes is embodied in hardware.

(Kay, especially: Fig.1, Items 9-12; pp.22-23; Figs.2A-2C; pp.24-25)

28. In regards to Claim 8, Kay teaches the following limitations:

8. A method as claimed in claim 1, characterised in that all of said processes are described in said hardware description language.

(Kay, especially: Fig.1, Items 9-12; pp.22-23; Figs.2A-2C; pp.24-25)

29. In regards to Claim 9, Kay teaches the following limitations:

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9. A synchronous electrical circuit produced by first simulating at least part of the circuit in accordance with the method of claim 1, and then creating the circuit using said hardware compiler.

(Kay, especially: Figs.3-10 and associated text)

30. In regards to Claim 10, Kay teaches the following limitations:

10. A synchronous electrical circuit as claimed in claim 9, which is a digital electronic circuit.

(Kay, especially: Figs.3-10 and associated text)

31. In regards to Claim 11, Kay teaches the following limitations:

11. A hardware description language adapted to simulate the behaviour of at least a sender process and a plurality of receiver processes, and comprising a language construct which effects synchronised communication between the sender process and the receiver processes.

(Kay, especially: Fig.1, Items 9-12 and associated text)

32. In regards to Claim 12, Kay teaches the following limitations:

12. A hardware description language adapted to carry out the method of claim 1.

(Kay, especially: Fig.1, Items 9-12 and associated text)

33. In regards to Claim 13, Kay teaches the following limitations:

13. A computer readable medium carrying a computer program adapted to carry out the method of claim 1.

(Kay, especially: Fig.1, Items 9-12 and associated text)

### ***Correspondence Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ayal I. Sharon whose telephone number is (703) 306-0297. The examiner can normally be reached on Monday through Thursday, and the first Friday of a biweek, 8:30 am – 5:30 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Teska can be reached on (703) 305-9704. Any response to this office action should be mailed to:

Director of Patents and Trademarks  
Washington, DC 20231

Hand-delivered responses should be brought to the following office:

4<sup>th</sup> floor receptionist's office  
Crystal Park 2  
2121 Crystal Drive  
Arlington, VA

The fax phone numbers for the organization where this application or proceeding is assigned are:

Official communications:	(703) 746-7239
Non-Official / Draft communications	(703) 746-7240
After Final communications	(703) 746-7238

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist, whose telephone number is:  
(703) 305-3900.

Ayal I. Sharon

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June 16, 2003



**SAMUEL BRODA, ESQ.**  
**PRIMARY EXAMINER**